

CLAIMS

- 1 A method of producing oil from a well comprising:
 - a vertical section extending from the surface to a depth below the oil-producing formation;
 - a sidetrack extending from the vertical section into the oil-producing formation; and
 - a first valve, located in the well, and operable to prevent flow of fluid from the vertical section into the sidetrack;
 - a second valve, located in the well, and operable to prevent flow fluid from the portion of the vertical section below the oil-production formation into the sidetrack or the portion of the vertical section of the well above the sidetrack;

said method comprising the step of :

 - allowing oil and water to flow into the well via the sidetrack until the hydrostatic pressure of the oil and water in the well balances the formation pressure of the oil-producing formation such that further flow into the well ceases;
 - allowing the oil and water in the vertical section of the well to separate under gravity so as to produce (i) a lower layer of water, at least part of which is located in the part of the vertical section below the oil-producing formation, and (ii) an upper layer of oil having its upper surface below the well surface and its lower surface above the sidetrack;
 - forcing the separated oil and water back down the well and operating the first valve such that substantially no fluid is forced into the sidetrack, and water is forced into the underground formation below the oil-producing formation; and
 - allowing oil and water flow to recommence from the sidetrack.
- 2 The method of claim 1, wherein separated oil and water are forced down the well until the oil water interface is close to the lower end of the vertical section.

- 3 The method of claim 1, wherein the steps of flowing, separating, forcing back are repeated until oil flows from the well at the surface.
- 4 The method of claim 1, wherein the step of forcing separated oil and water down the well is performed by applying pressure to the vertical section from the surface.
- 5 The method of claim 4, wherein pressure is applied by pumping oil or gas into the vertical section.
- 6 The method of claim 1, wherein the separated oil and water are forced back down the well such that the water is re-injected into the underground formation below the producing formation.
- 7 The method of claim 6, wherein the re-injection is performed below the fracture pressure of the underground formation.
- 8 The method of claim 1, wherein the oil is pumped from the well.